

In the Abstract:

Page 17, lines 2 – 6, rewrite the paragraph as follows:

Abstract

AT An automatic soldering machine utilizing many design features which substantially reduces maintenance, simplifies the soldering operation, improves the process reliability, reduces the cycle time, and reduces the cost to fabricate such a machine.

In the Claims:

Rewrite Claim 1 as follows:

1. An automatic soldering machine comprising:
a heater to provide heat to a quantity of solder wire and to parts in a soldering position for soldering; and
means to move said heater and solder wire into the soldering position,
said means to move said heater into the soldering position includes a pivot mounted frame for supporting a heater assembly,
wherein mechanisms for moving the heater and solder wire are actuated by cams.

Rewrite Claim 2 as follows:

A7 2. Apparatus according to Claim 1, including an oil pouch for applying a coat of oil on the solder wire, said oil pouch comprising:
an oil filled, open pore sponge elastomer contained within a sealed plastic bag,
wherein the pouch is positioned in the path of and is pierced by said solder wire to allow the solder wire to pass through the bag and sponge.

Rewrite Claim 3 as follows:

3. Apparatus according to Claim 1, further comprising:

various adjustments which may be controlled by a machine operator, a production setup person, or computer.

Cancel Claim 4.

Rewrite Claim 6 as follows:

6. An apparatus for soldering comprising:

a solder wire feeder having a rigid guide rail with an axial groove for nesting and guiding solder wire; and

an oscillating bar positioned over the rail which supports a sharp point for engaging the solder wire as required for a forward feed motion;

said rigid guide rail having a front end positioned within about 16 diameters of a solder wire diameter from the solder tip, and wherein the front end of the guide rail contains a biasing device which holds the solder wire within the groove.

Rewrite Claim 11 as follows:

11. Apparatus according to Claim 10, including means to provide a short pulse of the electric current applied to the tip simultaneously with removal of the tip away from a soldered part or parts.

Rewrite Claim 14 as follows:

14. An apparatus for soldering comprising:

a heated solder tip wherein said solder tip is at a relatively constant temperature and has one or more holes to receive a portion of solder wire that is about 0.125 inches in diameter or less angularly positioned within the tip, and has one or more intersecting holes to allow exit of molten solder onto a part to be soldered,

a solder wire feeder acting to feed the solder wire into the tip through the angular holes;

and wherein the one or more holes are of a properly designed shape, dimension, material, temperature, a controlled solder wire feed rate, and force to prevent molten solder and/or flux from ejecting out of an entrance of the one or more holes.

Add the following claims:

15. Apparatus according to Claim 14, in which said solder wire feeder includes a rigid guide rail with an axial groove for nesting and guiding solder wire, and an oscillating bar positioned over the rail which supports a sharp point for engaging the solder wire as required for forward feed motion.

16. Apparatus according to Claim 15, including an oil pouch for applying a coat of oil on the solder wire,

the pouch comprising an oil filled, open pore sponge elastomer contained within a sealed plastic bag, the bag being positioned in line with the and pierced by the solder wire to pass through the bag and sponge.

17. Apparatus according to Claim 16, including mechanisms for moving the solder wire actuated by cams.

18. Apparatus according to Claim 17, including means to periodically position the tip for a soldering operation, and means to heat the metal tip to temperatures in the range of about 500 F to 700 F at a rate of 0.75 seconds or less and cooling the tip to temperatures in the range of about 700 F to 500 F at a rate of about 1.5 seconds.

A/2

19. Apparatus according to Claim 14, in which the angular passage in the solder tip is provided with a tube extension of a low thermal conductivity material.
